

What I claim is:

1. An optical screen apparatus comprising in combination:
a first plurality of light transmitting elements;
a second plurality of light blocking elements; and
the first and second pluralities of elements are disposed generally parallel to a viewer and generally perpendicular to a viewing surface.
2. The optical screen apparatus of claim 1 in which the elements of the first and second pluralities of elements comprise ribbons of polymers.
3. The optical screen apparatus of claim 1 in which the first and second pluralities of elements include a front viewing face and a rear face.
4. The optical screen apparatus of claim 3 in which the first plurality of light transmitting elements includes rounded front ends at the front face to scatter light transmitted through the elements.

5. The optical screen apparatus of claim 4 in which the first plurality of light transmitting elements further includes prism elements at the rear face for directing light into the light transmitting elements.

6. The optical screen apparatus of claim 3 in which the first plurality of light transmitting elements includes light directing elements at the rear face for directing light into the light transmitting elements.

7. The apparatus of claim 1 in which the light blocking elements are opaque.

8. The apparatus of claim 1 in which the first and second pluralities of elements each have a refractive index, and the light transmitting elements have a refractive index at least .02 greater than that of the light blocking elements.

9. The optical screen apparatus of claim 1 in which the first and second pluralities of elements each have a thickness, and the thickness of the first plurality is greater than the thickness of the second plurality.

10. The optical screen apparatus of claim 9 in which the first and second pluralities are angularly oriented with respect to the vertical at an angle correlated to the thicknesses of the first and second pluralities for the optical screen apparatus to appear generally opaque at the viewing surface when no light is being transmitted.

11. The apparatus of claim 9 in which the first and second pluralities of elements have a front face at the viewing surface and a rear face remote from the viewing surface.

12. The apparatus of claim 11 in which the first and second pluralities of elements are curved between the front and rear faces.

13. The apparatus of claim 12 in which the curvature of the first and second pluralities of elements is correlated to the thicknesses of the elements such that the viewing surface appears opaque when no light is being transmitted.

14. The apparatus of claim 1 in which the second plurality of light blocking elements is embedded in the first plurality of light transmitting elements.

15. The apparatus of claim 1 in which the first and second pluralities of elements comprise a first layer.

16. The apparatus of claim 15 which further includes a second layer secured to the first layer and comprising an ultra violet protective layer.

17. The apparatus of claim 15 which further includes a second layer secured to the first layer, and the second layer has a third plurality of light transmitting elements and a fourth layer of light blocking elements, and the third and fourth pluralities of elements are disposed generally perpendicularly to the first and second pluralities of elements.

18. The apparatus of claim 15 which further includes a second layer secured to the first layer, and the second layer comprises a light reflecting layer.

19. The apparatus of claim 1 in which the first and second pluralities comprise a panel in which the first and second pluralities are disposed in alternating rows.

20. A method of making an optical screen apparatus comprising the steps of:

- providing a first extruder;
- providing a second extruder;
- providing an extrusion die for the first and second extruders;
- providing a first light transmitting polymer for the first extruder;
- providing a second light blocking polymer for the second extruder;
- extruding a first plurality of layers of light transmitting polymers and a second plurality light blocking polymers from the extrusion die; and
- interleaving the first and second pluralities to provide an optical screen in which the first and second pluralities are generally perpendicular to a viewing surface of the optical screen apparatus and generally parallel to each other and to a viewer of the optical screen apparatus.

21. The method of claim 20 which further includes the step of embossing the light transmitting layers to scatter light transmitted through the light transmitting layers.

22. The method of claim 20 which further includes the step of embossing the light transmitting layers to direct light transmitted through the light transmitting layers.

23. The method of claim 20 which further includes the step of embedding the extruded light blocking polymers in the light transmitting polymers.

24. The method of claim 20 which further includes the steps of providing a plurality of light scattering elements and securing the plurality of light scattering elements to the viewing surface of the light transmitting elements.

25. The method of claim 20 which further includes the steps of providing a plurality of light directing elements and securing the plurality of light directing elements to the plurality of light transmitting layers remote from the viewing surface.

26. The method of claim 20 which further includes the step of providing ultra violet light protection for the extruded optical screen.

27. The method of claim 20 which further includes the step of providing a reflective layer for the extruded first and second layers.

28. The method of claim 20 which further includes the steps of

extruding a third plurality of light transmitting elements and a fourth plurality of light blocking elements, and

securing the third and fourth pluralities of elements to the first and second pluralities of elements in a substantially perpendicular orientation.